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DISEASES OF ANIMALS ACTS.

The summary of returns which is published in this week's *Record* is worth attention, as it is complete for the year 1910.

The were 1496 outbreaks of *Anthrax* returned and whether the numbers are due to errors in diagnosis or not they show a gradual, steady increase over the previous years.

Foot-and-Mouth Disease appeared during the year in one of those unaccountable outbreaks which arise every three or four years. It was soon stamped out by the Board of Agriculture.

Glanders shows 355 outbreaks, and although it has decreased for the last four years is only disappearing slowly. Last week's returns are significant as to the success attending different local authorities. Ten years ago there were 1463 outbreaks and a large proportion of them in London —about 80 per cent. The last week in 1910 returned 13 cases of glanders—5 in London, 8 in the rest of England. The Metropolis has apparently ceased to be "the centre of the disease."

Sheep Scab returned 554 outbreaks which shows that there is still much to be done in its suppression, but there is decrease from previous years.

Swine Fever is credited with 1598 outbreaks which is evidence of widespread prevalence, but it is hopeful to see that the returns show a steady decrease every year from 2336 in 1907.

SURRA.

From Capt. J. D. E. Holmes' latest publication on the subject, it appears to be finally proved that the large majority of cases of equine surra, even if in an advanced stage of the disease, can be permanently cured by the judicious administration of arsenic. That arsenic is of value in surra is, of course, no new discovery; for it is now many years since Lingard demonstrated the possibility of successfully treating the disease by its agency. A great deal of time and patient labour have been devoted to the subject since then, largely in the direction of devising methods of administering arsenic which should combine the maximum anti-trypanosomal efficacy of the drug with the minimum amount of toxicity to the subject, and here the newer hypodermic arsenical preparations have been of great value. There was a time when only strong horses in the early stages of surra were suitable subjects for the arsenic treatment.

Captain Holmes' latest experiments, on the other hand, were almost unfairly severe; and their results show a large percentage of recoveries in old debilitated animals already far advanced in the disease. Being, as it is, largely a confirmation of previous experimental work, the present report may fairly be regarded as conclusive; and it certainly marks a brilliant achievement on the part of the workers at the Muktesar Laboratory.

If, as we anticipate, the new treatment is soon being successfully employed in all the districts in India in which surra exists, then it may fairly be said—that by its work upon surra alone, the Indian Civil Veterinary Department will soon have amply repaid the money spent upon it by the Indian Government. But we know that the work upon surra, important though the subject is, and unremitting as the attention paid to it has been, is comparatively only a small portion of industry of the Department; and we know how fruitful in many directions that industry has proved. It is absolutely certain that the I.C.V.D., undermanned as it is in the laboratory, and still more grievously so as regards its work in the field, has much more than repaid its cost to Government already; and it is to be hoped that these researches upon surra may help to impress upon the authorities the need for more men and more money.

The surprising thing about the I.C.V.D. is that so much good work has been and is being done by so few hands; and this may reasonably be taken to indicate how much more might be done were the Department numerically better fitted for its task.

TRAUMATIC INDIGESTION IN CATTLE.

Cases of wire taken into the stomachs of cattle are not infrequent in this, a colliery district. Discarded winding-ropes are used in making fences. These ropes are built up of numerous strands of steel wire. When exposed to the atmosphere these wires rust, and short lengths fall into the grass beneath and may, later, be picked up by cattle grazing in these fields.

So long as any wire thus swallowed remains embedded within the mass of food in the rumen, obviously no inconvenience is caused, but when the wire gets into the reticulum its presence is soon manifest. The usual course is for the wire to penetrate the reticulum, go through the diaphragm and a small portion of the adjacent lung to the pericardium and heart, setting up the usual symptoms of traumatic pericarditis.

Unfortunately the veterinary surgeon is seldom called in to the case until the wire has left the reticulum, and nothing can be done. Of late years an increasing number of stockowners seem to realise that treatment, to be efficacious, must be commen-

ced early. The symptoms are those usually recognised as being indicative of indigestion, with, however, one or two important aids to a differential diagnosis.

Speaking on broad lines, where indigestion is due to paralysis of the muscular coats of the rumen and reticulum, the cow does not throw the cud, *she simply cannot.* If the indigestion is due to a wire in the reticulum she chews the cud irregularly, but *it hurts her to throw it.*

The temperature also, in most cases where there is a wire, *rises slowly and steadily.* In indigestion of non-traumatic origin, the temperature either remains normal or *jumps up at a bound*, so to speak.

Perhaps I could best illustrate my meaning by describing a typical case.

Subject.—A shorthorn heifer, three months gone in calf.

Aug. 12. Off her food, grunting, rumination irregular, hurts her to throw the cud. Owner thought her throat must be sore, but examination showed that this was not the case; bowels not acting. Gave purgative. Temp. 101·5.

Aug, 13. Symptoms similar: still hurts her to throw cud. Gave Ammon. carb. and Nux vomica. Temp. 102.

Aug. 15. Symptoms similar: still hurts her to throw cud. Bowels not yet acting. Gave another purgative. Temp. 102·5.

Aug. 17. No change: still shows pain in throwing the cud; temp. 103. Decided to operate, and performed rumenotomy. On feeling inner surface of reticulum found a piece of wire about 1½ inches long, one end being embedded in the reticular mucous membrane, and surrounded by a tuft of grass or hay.

After this wire was removed, the cow chewed her cud regularly, gave no evidence of pain in throwing it, the bowels began to act more regularly, and the temperature gradually fell to normal in about a week.

The operation wound was sutured and treated on ordinary lines until, on the 22nd Sep., healing was almost complete. When seen the other day the cow was in very fair condition, and it required a very careful inspection to locate the cicatrix.

This case is instructive because it shows clearly the presence of pain in throwing the cud, and the very gradual rise in temperature. In every case where I have noticed these two symptoms, a wire or nail has been found either after rumenotomy or after the cow has been slaughtered by the butcher, where circumstances justified this.

W. Selborne Worthington.

The Square, Wigan.

RETENTION OF FŒTUS IN A MARE.

The following case appears to me most uncommon. Possibly other members of the profession who may have met with similar cases may be able to shed some light on the matter.

On February 10th, 1909, I was requested to examine for insurance an in-foal ten-year-old pony mare, which had been served on June 21st, 1908.

About March, 1909, the mare passed large quantities of a watery fluid, and immediately afterwards became much reduced in size, but no fœtus was seen although the mare was never out of the stable when not at work, and the owner was eventually paid by the insurance company on the assumption that the animal was barren.

On December 31st last, my partner's "locum" was asked to examine the mare, as she was continually passing purulent matter from the vagina. After some difficulty he removed the head of a fœtus in pieces, and finally the trunk and limbs of a foal entire, about the size of a pug-dog.

The owner asserts positively that the mare has never been out of the stable except when at work since the time of her only "service" in June, 1908. Therefore it is apparent that in normal circumstances (taking 340 days as the average period of gestation) the foal should have been born on May 27th, 1909; instead of which it was only removed on December 31st, 1910, or 2½ years from the date of "service."

One can only assume that the passing of large quantities of fluid in March, 1909, was the period when the membranes were ruptured and that the fœtus then present has remained in the uterus until Saturday last, the only symptoms present being a copious purulent discharge latterly. No symptoms of "septicæmia" have been observed.

Presumably the foal died some time before the rupture of the membranes in March, 1909, otherwise the fœtus would have been much larger, for at that date the mare had been pregnant about nine months.

I have, in the case of the cow, seen portions of the calf coming away—such as a part of a limb, etc., but in this case the fœtus after 2½ years was practically intact in the uterus, and the mare was not even straining.

W. T. Olver, M.R.C.V.S.

Tamworth.

ABSTRACTS FROM FOREIGN JOURNALS

Natural Immunity of the Domestic Cat to Viper Venin.

According to G. Billard, the cat has been mentioned by several naturalists to be an exterminator of serpents. This is not due to its agility in avoiding bites, but possibly to it containing in its serum substances like those found in the serum of the guinea-pig which neutralise the neurotoxine contained in the venom of vipers.

Madame (Dr.) Phisalix has shown that the venin of Salamanders, which is a convulsivant, is antagonistic to the venin of vipers which is a paralysant.

Immunity of some birds to the Venin of Vipers.

Billard and Maublant have shown that the domestic duck and the church owl are naturally immune to the venin of vipers. It is not surprising

that the great Grallæ (stork, heron etc. family of birds) are naturally immune since they have, without doubt, from time immemorial been the enemies of reptiles. These birds are well known to be refractory, and Fontona was able to inject into a crow immense doses of venin without killing it.

Among the palmipeds, the common duck shows a most remarkable indifference to venin. A very large viper was caused to bite a duck twice at an interval of three days. The duck only showed dyspnœa which lasted half an hour. Kaufmann had already pointed out that the duck was one of the animals that was a destroyer of vipers, but no definite experiment appears to have been made to determine if this animal was refractory.

Two screech owls were bitten on the feet by two vipers. Only a very slight local œdema and lameness was observed, and these did not last longer than two hours. At each bite these vipers injected at least from 5 to 7 mm. of venin, an enormous dose for birds, since 2-5mm. of venin have killed within an hour pigeons as large as the owl.

It is a well known fact that the hedge-hog and the pig are refractory to the venom of serpents, and also are great destroyers of these animals.—Société de Biologie, Paris meeting, Oct. 22nd, 1910.

Examination of the Serum of Horses bearing Malignant New Growths by the method of Ascoli.

Ascoli has remarked that the superficial tension of serum coming from a patient suffering from an infectious disease diminishes sensibly if a certain quantity of corresponding antigene is added and is afterwards heated for an hour in a water bath at 50° C. Ascoli and Izard applied this reaction in the superficial tension to the sero-diagnosis of malignant tumours and obtained satisfactory results, which have been confirmed by several authorities.

Ugo Mello has studied this serum method in 24 horses bearing malignant new-growths and obtained 21 positive reactions. Benign tumours, as well as the small melanotic ones, did not in the majority of cases give any reaction, or only a very feeble one. In consequence of the instability of the antigene, this method has not yet any real value in practice.

Sarcoma of the Fowl transplantable and giving rise to Metatases.

Peyton Rous mentioned at the November 5th meeting of the Parisian Society of Biology that a malignant tumour having typical fusiform cells and resembling very much the neoplasmata of man could be engrafted only on fowls of the *same* variety as the one from which the primary tumour was first obtained. The results were positive in 75 per cent. of cases. The rapidity of growth was very great. Pulmonary, hepatic, renal, and cardiac metatases were frequent.

H. G.

A Recently Discovered Bovine Lymphatic Gland.

Stroh, of Augsbourg, has recently described (*Zeitschrift für Fleisch und Milchhygiene*) a lymphatic gland which he calls the *xiphoidien*) gland which is not mentioned in anatomical treatises, and, which is situated in the angle formed between the cartilage of prolongation of the last sternal rib and the sternum.

Godbille now gives an account of the precise anatomical relations of this gland, which is not without importance in meat inspection; and also gives directions for exposing it.

The method of dissection to expose the gland varies in accordance with whether the carcase is still entire or divided. In the former case, the dissection is made at the sub-xiphoid region; in the latter, the supra-sternal route is followed.

A transverse section of the thorax made through the middle of the osseous part of the xiphoid sternebra reveals the existence, between the section of the cartilaginous prolongation of the eighth rib and that of the sternum, of two layers of fascia which are inserted upon each of the osseous portions. These aponeurotic layers envelope, as if in a sheath, an accumulation of fat of variable size, which sustains Stroh's gland close to the border of the sternebra.

Between these two layers of fascia and near the hypochondrium, the section of the anterior abdominal vein is seen, and is recognised by its thin flaccid, folded walls and widely gaping lumen. Beside and slightly external to this is the section of the anterior abdominal artery, recognisable by its narrower calibre and regularity of section. The superior of the two layers of fascia is covered by the anterior digitations of the transversalis muscle of the abdomen; the inferior one is related to the anterior portion of the great straight muscle of the abdomen, from which it is sometimes separated by a layer of fat.

The method of exposing Stroh's gland by dissecting from the subxiphoid region is to incise the sternal insertion of the ascending pectoral muscle all along the xiphoidal sternebra, and then similarly to incise the insertion of the great straight muscle of the abdomen and thus expose the inferior of the two layers of fascia. This being cut, the anterior abdominal vein and the mass of fat which hides Stroh's gland are brought to view. In order to facilitate the dissection, the ascending pectoral and straight abdominal muscles may at the same time be incised transversely about the posterior border of the xiphoid cartilage.

To expose the gland by dissecting in the contrary direction—from the superior aspect of the retro-sternal region—it is necessary to be well acquainted with the topography of the muscular insertions of the diaphragm, the abdominal transversalis, and the triangularis sterni.

The triangularis sterni is also called the transverse muscle of the thorax, and is only the continuation within the thoracic walls of the abdominal transversalis muscle. Like the latter, it extends

from the costal cartilages to the inferior sagittal line of the walls of the visceral cavities. The anterior digitations of the abdominal transversalis are fixed to the xiphoid cartilage and sternebra close to the insertion of the great straight muscle of the abdomen; the last digitation of the triangularis sterni has a parallel disposition, and is also fixed to the sternebra. The diaphragm, in becoming inserted upon the cartilage of prolongation of the eighth rib, separates the neighbouring digitations of these two muscles. In the same region the diaphragm is also seen to be inserted upon the superior aspect of the xiphoid appendage by an uneven digitation which forms a sort of inferior diaphragmatic pillar. This fleshy fasciculus is separated from the neighbouring digitations of the costal portion of the diaphragm by an interstice, in the region of which the two splanchnic serous membranes often remain in juxtaposition.

If the fleshy portion of the abdominal transversalis is incised all along the border of the hypochondrium, it is seen that the muscle is in contact by means of a loose connective tissue, with a somewhat dense aponeurosis which separates it from the great straight muscle of the abdomen. This aponeurosis is continued to the costo-sternal fork to form the superior of the two layers of fascia already described, under which the vessels and Stroh's gland are found. The inferior layer of fascia is really a reflexion of the superior one, and extends to the orifice of the subcutaneous abdominal vein (a superficial ramification of the anterior abdominal vein) to form a vascular sheath.

To find Stroh's gland, the diaphragm is first detached at its insertion upon the cartilage of the eighth rib and upon the xiphoid appendix. The fleshy digitations of the abdominal transversalis and the triangularis sterni are then incised near their insertion upon the sternebra. The superior of the two layers of fascia is thus reached, and when it is incised the vascular sheath is opened. The fleshy and aponeurotic fragments are then cleared away and the anterior abdominal vein is exposed, with the accumulation of fat contiguous to the sternebra and containing Stroh's gland.

The gland varies from the size of a pea to that of a haricot. It is not constant, being found upon an average in six out of ten subjects.

According to Stroh, this gland will be altered by tuberculosis at the same time as the sternal glands in cases when the lesions are localised upon the two splanchnic serous membranes. It will also always be invaded by tuberculosis lesions in cases of tuberculosis of the diaphragmatic and hypochondriac peritoneum. Finally, it will participate in the infection in cases of tuberculous generalisation.—*L'Hygiene de la Viande et du Lait.*

Unfavourable Sequelæ of Disinfection by Tincture of Iodine—Two Human Cases.

Dr. Hindenberg, of Strelitz, is an advocate of Grossich's method of disinfecting the skin by tincture of iodine alone.

Nevertheless he notes (*Münchener Mediz. Woch.*) the occurrence of unfavourable results in two human patients, both cases being similar ones. Both were of injuries to the toes from axe blows, and tincture of iodine was applied to them. In both cases slight gangrene of the edges of the wound appeared and healing was delayed.

Hindenberg believes that these cases were caused by the tincture of iodine penetrating into the still bleeding vessels and causing necrosis. He therefore suggests that it may perhaps be advisable, when disinfecting incised wounds with tincture of iodine, to protect the incised surfaces from penetration by the tincture.—(*Berliner Tier. Woch.*)

Puerperal Septicæmia of Cattle.

Ohler (*Münchener Tierärztliche Wochenschrift*) comments upon the wellknown great differences that individual cases of this disease present, as regards both the clinical symptoms and the method of origin. In one case, for instance, the disease may arise after injury to the genital passages when parturition has been roughly assisted, or when the membranes have been retained and decomposed; in these cases there may be acute local symptoms dependent upon the injuries and infection, and yet despite this recovery may ensue,

In other cases the disease may appear after an easy parturition and a normal discharge of the after-birth; and the result, despite careful treatment, may be death.

Ohler explains these clinical divergencies by his view of the pathology of the disease. He considers the cause of puerperal septicæmia to be the *streptococcus pyogenes*. But if, along with this organism, those of other species—and particularly the putrefactive bacteria—gain access to the blood stream, Ohler affirms that the latter outgrow the former, and weaken or destroy it. This view explains the differences of the symptoms which are observed in practice in cattle suffering from puerperal septicæmia.—(*Berliner Tier. Woch.*)

Acute Arsenical Poisoning—Rapid Death.

H. Jakob records a case in which a disinfectant preparation was laid down in a stable as a rat poison. The poison was laid according to the direction of the firm supplying it, who guaranteed its harmlessness if used as prescribed; and the method of laying it was upon small pieces of bacon. A dog, having eaten two of these pieces, died within a few hours.

Post-mortem, Jakob found merely an erosive hæmorrhagic gastritis in the cardiac region of the stomach, and some streaky hæmorrhages in the pyloric region; the alterations in the other organs were insignificant. The two pieces of bacon were found in the stomach, were chemically analysed, and proved to contain arsenic in the quantity of about 0·1 gramme (1½ grains) to each piece.

Jakob infers from this case that, firstly, the doses of arsenic now stated as lethal are correctly estimated, and, secondly, that the guarantee of harmlessness which had been given was unjustifiable.

Quantities of 1½ grains of arsenic are very dangerous to dogs, cats, poultry, and especially to children.

Jakob explains the unusually rapid death and the atypical post-mortem appearances by the view that cardiac paralysis, occurring early, had shortened the illness.—(*Berliner Tier. Woch.*)

W. R. C.

VETERINARY REPORT OF THE BECHUANALAND FIELD FORCE.

From 1st Cl. Veterinary Surgeon F. Duck, late Local Inspecting Veterinary Surgeon, South Africa, to the Principal Veterinary Surgeon, War Office, London. Aldershot, 29th Dec. 1885.

Sir,—I have the honour to forward the following Veterinary Report of the Bechuanaland Field Force, commencing in December 1884 and terminating in August 1885 :—

The entire staff of the Department came from England ; with one exception, they were unaccustomed to the Cape horse and to horse management in South Africa. Previous local experience is of benefit, both in the selection of horses and in their after-management. The turning out of horses in troops or mobs, for grazing, is so novel, and so opposed to English ideas, that newcomers do not readily adapt themselves to this local custom. Judgment is necessary in the selection of the best grazing grounds (veldt), and tact is required in the management of the horses, to allow them to spread out sufficiently to get the pick of the grass without straying, and not to hustle or crowd them together.

Nearly all the mares bought proved to be in foal ; hence the objection to the purchase of mares for service in the field.

The entire contract for the horses was given to one firm—the Messrs. Fraser. Whether this was a wise measure is a matter of opinion. I consider that the price given, *viz.*, £33 per head, was unnecessarily high, and that the same class of horse could have been as readily purchased for a smaller sum.

At the close of the expedition the horses were returned to the Remount Depôt, and sold by public auction at Kimberley and Barkly. The average price realized was :—Horses, £6 16s. 6d. ; Mules, £5 7s. 6d.

Three volunteer regiments were horsed ; a troop of mounted Infantry ; two batteries of Artillery ; a troop of Mounted Pioneers ; Department, &c. The numbers being :—Horses, 3,071 ; Mules, 824 ; Government oxen, 61 ; Hired oxen, 8,128 ; Total, 12,084.

The number of horses includes those of the 6th Dragoons and C Battery, 1st Brigade, Royal Artillery. There were purchased 2,521 horses and 187 mules by Colonel Cottingham, R.A., of the Remount Depôt, ably assisted by 1st Class Veterinary Surgeon J. H. Cox, Army Veterinary Department. Five officers of the Army Veterinary Department were employed, one administrative and four executive. Owing to the press of work, three additional Veterinary Surgeons were attached to the Department for duty—Messrs. Rangeley, Brown, and Gentle—who were in the volunteer regiments. Although nominally attached to regiments, all performed general duty, and rendered veterinary aid to both Government and hired animals in their vicinity. All the Officers of the Army Veterinary Department and Mr. Rangeley carried on their duties throughout in a very satisfactory manner, and with commendable professional ability.

To enable Veterinary Surgeons to give more time to their field duties, the Record of Treatment Book was discontinued, and clerical work as much as possible done away with. The Register of Sick and Lame only was kept up, and one simple monthly return called for.

I would suggest, for consideration, that there might be some change in the assortment of medicines in the veterinary field chests. Some medicines might be left out as not being necessary in the field, while the quantities of the more common medicines might be increased, *e.g.*, Tinct. opii., spt. æther nit., spt. ammon. aromat., turpentine, linseed oil. There was an ample supply of reserve medicines with the Local Inspecting Veterinary Surgeon. These were distributed as required, requisitions were not called for, receipts only taken and filed. For the use of small detached posts, of which there were many, small boxes of prepared medicines would have been very useful.

Twelve *veterinary wallets* were sent out from home, but unfortunately did not arrive until the close of the expedition. At the commencement, when mounted troops were being constantly moved, they would have been of great use. I consider they meet a much felt want on active service.

Twenty Farriers and Shoeing Smiths were sent out from England ; they were all good workmen and were most useful. In South Africa it is always a difficult matter to procure good shoeing-smiths, as they receive such high wages in civil life. As no definite instructions were sent from home with these men, there was at first a little difficulty in getting them posted to where they were most required—*viz.*, to the volunteer regiments, and in getting them the extra pay to which they were entitled.

Of these men, Farrier G. Simpkin, Royal Horse Artillery, was attached to me for duty ; he was intelligent, trustworthy, and very useful. Farrier Birkenshaw, 20th Hussars, acted as farrier-major of the Remount Depôt, and did his work well. I think it would be of benefit, on service, if the farriers were placed more at the disposal of the Veterinary Surgeon ; so that whenever a troop or half troop happened to be sent on detachment, a competent man could be told off, if necessary, from another troop.

In lieu of the regulation field forges, light "rivetting" *forges* were purchased and issued. These forges are light, useful, easily worked, and can be carried on any wagon. They proved most useful. It must be remembered that in South Africa, where so much wheeled transport is used, forges are necessary for other work than shoeing horses and mules.

The *horse-shoes* at first issued were provided by the horse contractor ; they were of inferior metal, and could not be worked without forges.

Horse-shoes of the new concave pattern were afterwards issued, and a severe and extended test in the field proved their efficiency ; they are a decided improvement on the old service shoe. The new shoes are readily fitted either hot or cold ; they can be, and occasionally were, fitted cold on a wagon wheel, thus proving their suitability for emergency. They wear well, lasting in South Africa over two months ; so requiring a double set of nails for removing purposes. The Nos. 2, 3, and 4 are suitable for colonial horses.

As a general rule, it is not necessary to shoe the hind feet in South Africa ; to do so is a waste of material and labour, and the accidents from kicks are more serious. It is, however, necessary to shoe all round, both horses and mules, when the animals are working regularly on hard roads, or over rough, stony country.

The *saddlery* supplied to the irregular regiments was of good pattern, strong, useful, and lighter than the service saddle. Occasionally there were inferior workmanship and indifferent padding. These saddles are not adapted to carry so much weight as the regulation one. I look upon this as an advantage. On active service, where horses are required to do long fatiguing work on limited rations, it is only reasonable to do away with as much dead weight as possible. The large amount of

dead weight at present carried must have a great deal to do with the number of sore-backs usual on service.

The proper material for re-stuffing saddles was often hard to get, and freshly clipped wool was occasionally issued. For the prevention of sore backs, it is of importance that suitable repairing material, with competent workmen, should always be at hand.

The American regulation saddle, at first sight, seems a perfect one. Some time ago, about three years, a consignment of these saddles was procured in Natal, and issued for the Mounted Police. A fair and extended trial was given, with the result that the men preferred the old pattern saddle, and the American was discontinued. As the troopers of the Natal Police pay for their saddlery, they have strong reasons for getting the best.

English *horse blankets* were issued for all horses. There is no doubt they are very beneficial, and I should always recommend their use when the necessary transport is available. But I do not consider that horses suffer in health nearly so much as many people imagine when blankets are not used, or when from unavoidable causes they are discontinued.

Eye fringes are necessary during the summer months. If they be not used horses suffer from sore eyes.

The *grains* used were mealies (Indian corn) and oats. The mealies were of good, the oats of fair quality. Change of diet should be avoided on service, for the reason that the horses do not readily take to a new grain, and as a consequence suffer in condition.

Grain forage (oat-hay) is splendid feeding for all animals. I cannot conceive a better article of diet where grass or hay is scarce. If I may use the expression, it is the combination in the one plant of grain and hay. On oat-hay alone, without any other diet, horses will work well, and keep condition. The objections are its bulk and the shedding of the grain. Both objections have their remedies.

In South Africa horses and mules thrive and work well on mealies, but constant attention is necessary.

Owing to various causes there was often difficulty and delay in getting "veterinary stores," such as bandages, etc., and the proper sizes of horse-shoes and nails. Instance:—A supply of No. 1 size of the new pattern concave shoes, suitable for ponies, was sent up to the 6th Dragoons, at Mafeking, for their big horses.

On service it would be advisable for "veterinary stores" to be provided through the Veterinary (in lieu of the Ordnance) Department, and also that some better arrangement be made for the supply of horse-shoes and nails.

The *Trek oxen*, in number 8,128, belonged to private owners, and were collected from all parts of the Colony. Accurate statistics of losses are not available, as the owners in many cases concealed the nature of the diseases and exaggerated their losses. I am informed by the Senior Commissariat Officer that the losses averaged about 7 per cent. The deaths were principally from contagious pleuro-pneumonia, starvation, and anthracoid diseases. As a preventive against the first, inoculation was recommended by the Veterinary Department, and carried out. At Vryburg, 1st Class Veterinary Surgeon J. C. Berne inoculated over 2,000 oxen.

The ordinary custom of the colonial transport rider is to work his oxen three hours in the yoke, and then rest for three hours. He rides (travels) as much as possible by night, so as to rest and feed the oxen during the day. He particularly avoids working in the morning, from 10 a.m. to 2 p.m. The bullocks are watered twice a day in the summer; in the winter once a day is sufficient.

Horse-sickness, or anthrax fever, is the most prevalent and fatal disease in South Africa. It is a disease of the summer and ceases after frost. We were informed, at the commencement of the expedition, that we should suffer heavy losses from this disease, some local authorities said as high as 50 per cent. The actual losses were: Horses, 1·3 per cent.: Mules, ·97.

This small loss I attribute to the latter half of the sickly season being dry, and consequently healthy; also to the great care taken of the animals. A wet season is always the most unhealthy.

As a preventive measure, nosebags were worn at night time by all horses. In my opinion, the only good resulting from this practice is, that horses are prevented from eating the grass in the lines at that time. In other ways I consider this practice to be objectionable; the horses are obliged to breathe impure air, and thus their condition is impaired. This fact was especially reported to me by Veterinary Surgeon Rutherford, of the 6th Dragoons who had been with the regiment for four years, and to whose professional opinion I attach great value. The mules, equally susceptible to this disease, did not wear nosebags.

I have formed the opinion that the majority of cases of this disease are contracted during grazing, and my reasons for this are contained in a report made to the Natal Government in 1884. I attach an extract from this report, and I would add that Mr. Wiltshire, Colonial Veterinary Surgeon of Natal, holds the same opinion.

Assuming that this is a germ disease and that the germ is conveyed into the system through the medium of the grass, the best preventive, evidently, would be to withhold grazing altogether during the sickly months, and to substitute prepared food, as hay or forage. This fact is practically recognised. On active service, however, it cannot be carried out. The next best and most reasonable preventive, is to carefully select the grazing ground and the time for grazing. Low marshy grounds should be avoided, as they are acknowledged to be the most dangerous for the production of the germ, and the animals should not be turned out to graze in the morning until the grass is dry and free from dew: they should be brought in early in the afternoon. Grass wet with rain is not injurious.

The adoption of these measures, with grain feeding in camp and general care of the animals, appear to me to be the most rational and effective means of prevention.

In the month of August, 1885, six mules died from this disease; these are not included in the percentage quoted above. These mules had been on detached duty in the valley of the Dry Hartz River.

During the month of May, 1885, five cases of *Glanders* occurred—two at Sitlagoli, three at Mafeking. These cases occurred about the same time, and in different corps. At Sitlagoli the first case occurred in the 1st Mounted Rifles, the second case in the Pioneers. At Mafeking one belonged to the transport, one to the Royal Engineers, and one to the 2nd Mounted Rifles. It is now generally believed that this disease does not arise spontaneously, but I am unable satisfactorily to explain how it was introduced into this Force. Energetic measures were at once taken, and with satisfactory results. The disease was stamped out, only eight horses were destroyed for glanders, and one for farcy.

Owing to care and attention, the number of *sore backs* was comparatively few, and not calling for special mention. Amongst the horses of the Signallers and of the Telegraph Section the number of cases was in proportion large, due to the lack of horse knowledge amongst the men, and to the peculiar and arduous nature of their duties. Many officers recommend that grey blankets be substituted for numnahs. There can be no doubt that there are occasions when the blankets becomes most useful, *i.e.*, when horses begin to lose condition, and when the saddle padding becomes hard from wear. There are serious objections to the general adoption of the blanket. It requires to be carefully folded, cleaned from dirt, &c., and evenly laid. On a

dark morning, or on a windy day, it is almost impossible for one man to arrange the blanket and saddle up. It is apt to become displaced and work backwards on a march. I repeatedly noted this in Bechuanaland.

Appended to this report are the following returns :—1. Admissions into the sick lines. Percentage, 25·01. This does not include hired transport oxen. 2. Return of horses died. Percentage, 5·54. 3. Return of horses destroyed. Percentage, 1·33. 4. Return of mules died and destroyed. Percentage, 5·58. 5. Return of Government oxen. Fatalities 5 per cent.

I beg respectfully to offer the following suggestions : 1. That a good clerk be posted to the Inspecting Veterinary Surgeon. 2. That slaughter cattle be inspected by a veterinary surgeon. 3. That clerical work on service be reduced. 4. That veterinary "stores" be supplied by the Veterinary Department, and more satisfactory arrangements be made about the supply of horseshoes and nails. 5. That farriers be more under the control of the veterinary surgeons. 6. That the field chests be re-arranged, and smaller chests of prepared medicines be provided for detached farriers. 7. That officers of the Department sent on service should have sufficient experience to give weight to their professional opinion. 8. That more frequent inspections of animals be made, especially of hired animals, with the object of preventing the introduction of contagious disease, and of attending to cases before they become serious. On service it is often a question whether it is worth treating severe cases. At the end of the expedition the horses and mules were in good hard condition. They were well cared for throughout, and to this I attribute the small loss, in a great measure, from "horse sickness"; the few cases of sore back ; the stamping-out of glanders ; the immunity from skin disease ; the small percentage of losses.

Concluding this report, I am happy to inform you of the ready assistance given to our Department by the General Officer Commanding, by the Headquarter Staff, and by Officers Commanding.

N.B.—I have appended to this report remarks on colonial horses and mules and on English horses in South Africa.

Remarks on South African Horses and Mules, and on English Horses in South Africa, for the information of the Principal Veterinary Surgeon.

The Colonial horse is, in my opinion, well suited for military purposes. He can stand all weathers, heat, cold, or rain ; he is active and courageous, and can travel long distances day after day on a limited allowance of grain and what he can pick up in the veldt. The average height is from 14·2 to 14·3, and he is well and strongly shaped. From early training and docility, he can be safely turned loose to graze, thus dispensing with the transport of hay. I quote the following instances of good work done by horses ;—(1) In 1878 the Frontier Light Horse, 250 horses, under Major Redvers H. Buller, C.B., marched from King William's Town to Leroweni's country, distance over 900 miles. Average daily march 22 miles. At the end of the march the horses were in good hard condition.

(2) Jan. 22, 1879. A strong body of mounted volunteers under Lieut.-Col. Redvers H. Buller, left Kambula Camp for a special object at 1 a.m., and returned at 11 p.m. of the same day. Distance covered estimated at 70 miles, and over rough hilly country.

(3) April 24, 1879. The mounted forces of the Flying Column under Lieut.-Col. Redvers H. Buller, C.B., did the following work :—

April 24. Marched from Kambula to Luneburg. 36 miles.

April 25. Under saddle all day, engaged with the enemy, etc,

April 26. Marched back to Kambulla. 36 miles.

April 27. Marched round Klobane Mountain. 26 miles.

April 28. Under saddle from 3 a.m. until 5.30 p.m. Battle of Klobane. Horses neither fed nor watered until late. Returned to Kambula, 26 miles.

April 29. Battle of Kambula, horses under saddle all day.

Of late years great attention has been given to horse-breeding ; many thoroughbred English sires have been imported, and also a number of Shire and Clydesdale entires. The cross between the cart horse and the Colonial mare has produced a very useful, compact, draught horse about 15 hands, well suited for Field Artillery. At the close of the Zulu war, numbers of English mares from the 17th Lancers and 1st King's Dragoon Guards were sold by auction, and bought by farmers for breeding purposes. The first foals were not a success, the second were better, the third gave complete satisfaction.

I have written the above with the object of showing that the Cape horse is well suited for Mounted Infantry and for Native Indian Cavalry. If the Indian Government would give a little encouragement, Cape breeders would supply a large number of useful hardy nag horses. Small mules are bred in large numbers, and are hardy useful animals.

I do not consider the English troop horse is adapted for South Africa, he requires so much food and care. On service the Colonial horse can "walk round him."

Pedigree in Shires and Shorthorns.

There is a remarkable contrast between the principles pursued in the breeding of pedigree cattle and pure-bred horses, be they Shire or thoroughbred. In the former case everything in the way of merit is laid to the credit of the dam or the dam's particular family or tribe, and in the latter case all merit is usually attached to the particular sire the animal is by. To give one or two examples of the meaning of this—at many Shorthorn sales of the present day (and the same thing applies to other bred cattle as well), females of certain approved and fashionable tribes make fabulous prices, whether they happen to be of any particular merit or not, but so long as they are Augustas or Clippers, or some such fashionable tribe, they can very readily find customers. So it was in the days when the old Bates families had their numerous admirers, and Duchesses, Oxfords, Waterloos and Kirklevingtons were running into four figures as quickly as the auctioneer could take the bids. Now, in none of these cases is, or was, there ever made any great mention of the sire or the various sires in the pedigree. It is all the question of the name of the tribe to which the female belongs that puts on the value. But we look on the other side, in the breeding of horses, either Shires or thoroughbred, as the case may be, every importance is attached to the sire, and foals or yearlings, when they come under the hammer, do not make high prices by reason of the merit of their dams, however great that may be, but by reason of their being by Lockinge Forest King, or St. Simon, or Cyllene, as the case may be.

Now it seems to the writer, and must also appear to many practically breeders, that if the sire is "half the herd," or "half the stud," then more importance should be attached to the influence of the sire for good in the buying and breeding of pedigree cattle, on the same principle as that influence is deemed paramount in the breeding of horses.

In horse-breeding it is well-known that the use of a bad sire is fatal, however good the mare may be, and it is also well-known that the influence of a well-proved sire in a shabby or mean-looking mare is often very

great, and many of our best racehorses have been bred from practically worthless mares by sires of note. So it is in Shires also, that many a common-bred and mean-looking mare has bred a "topper" to a noted sire, thus showing how great the influence of the sire is, and that in the breeding of horses proper importance is attached to it.

No horse-breeder possessing a mare of a certain line of blood would dream of putting that mare to a sire of no particular merit or breeding, simply because the mare was of a certain line of blood, and expect the result to be a success solely on account of the mare's pedigree, and yet is not this sort of thing seen only too often in the breeding of Shorthorns, and other pedigree cattle too, for that matter. Because a female happens to belong to a certain tribe, it seems to be expected that she cannot breed a wrong one, no matter what the sires may be in her pedigree, or how or on what lines they may have been bred. A cow may be an Augusta, or a Clipper, or a Duchess, or Oxford, but that is no criterion that she is bound to breed something meritorious, because there is every probability that there is very little of the original blood or the blood of the foundress of the tribe running in her veins, except in cases where the animals of a certain tribe have been closely bred, and only sires of the same lines of blood appear in the pedigree. But in how many cases is this to be found?

PEDIGREE PRICES.

One can venture to say nowadays that an animal bred on such lines cannot be found, and in all the pedigrees of these fashionably descended animals—fashionable only, be it noted, because the original dam possessed some merit herself, or bred one or two animals that did so—sires of all sorts and of all the various types and lines of blood known, are to be found. It therefore just amounts to this, that the value attached to animals of certain tribes is absolutely fantastic, and if more importance was given to the list of sires in any pedigree, there would be more certainty and less disappointment in the breeding of pedigree cattle.

In horse-breeding a youngster is perhaps advertised as being by Lockinge Forest King, dam by Harold, (this is only given by way of example): the youngster is sold, and makes a big price by reason of the excellence or prepotent qualities of the sire and the sire of the dam. The dam's own line of blood is nowhere, but the chief merit is expected to come—and rightly so—through the sires in the pedigree, and not from merits of the granddam or great-grand-dam.

The Shorthorn breed has in the past suffered very severely through fictitious values being put on animals of certain tribes, and if breeders are not careful, will do so again. There is no doubt that females of certain tribes often do possess many excellent qualities, and these qualities can be seen from one generation to another, but it is only in cases where these tribes have been in the hands of clever breeders, who have always been careful in the selection of sires, and have only used those sires that were known to mix well with the tribes in question. On the other hand, it is possible to see any day animals of noted lines of blood possessing no useful or ornamental characteristics whatever, simply because for several generations sires of no merit, or bred on unsuitable lines to mate with the tribe or tribes in question, have been used.

What on earth good then can a simple paper pedigree be? It means nothing valuable unless the sires in it have been not only of individual merit, but bred on lines that are bound to mix well with the tribes on which they have been used. One bad sire, bad in himself, and bred on wrong lines, can spoil the value of any pedigree, so far as breeding good cattle is concerned. Unless a certain pedigree can produce good stock with some degree of certainty, of what practical value is it? None at all.

INFLUENCE OF SIRES ON A TRIBE.

The writer has taken particular notice of the way in which certain Shorthorn tribes or branches of these have bred, more especially some with which he has been intimately connected, and in one tribe in particular, in which many of the females themselves were on the shabby-looking side, and yet almost invariably bred a good bull.

He attributed these breeding qualities, not to the fact that the dams belonged to well-known and popular families, but to the fact that the list of sires in the pedigrees contained the names of many famous prize-winners.

There is no doubt, in the writer's mind, that therein lies the secret of success in the breeding of all classes of stock. It is no use attaching fancy values to pedigree alone The other side of the list must be carefully examined as well, and it must be carefully noted what the sires used have been, and on what lines they have been bred. If we look at the breeding of any of the crack Shorthorns of to-day, animals that are taking first prizes all over the country, how many owe their positions to the fact that they belong to any fashionable tribe? Hardly any, and the breeding of a great many of our chief prize winners would be deemed rather "unfashionable. If one Augusta does win all before her, it does not follow that every other Augusta is going to do likewise, and it will probably be ever so long before another is heard of in the show ring.

In the pedigree of most prize winners it is almost always to be found that prize-winning sires figure in the list. It is of no use saying that the bull is half the herd if the original dam in a cow's pedigree is to get all the credit for the excellence of the offspring.

It is by no means desired to throw cold water on the value of certain lines of blood, for several of them do, without a doubt, possess characteristics not seen in other tribes, but it has been due to the careful selection of sires that those characteristics have been kept up. Fashionable blood is all very well if backed up by good animals—and if the merits and breeding of the sires used in the pedigree will bear investigation—but not otherwise, and if a pedigree is to be of any practical value there should be merit right through on both male and female sides; then the descendants are worthy to bear the name of the founder of the family and to be valued accordingly. NORTHANTS.

—*Farmer and Stockbreeder.*

Action by the Local Government Board against a District Council.

Commenting on the judgment on appeal, which we printed last week, *The Irish Times* says:

"In April of last year the Local Government Board issued an Order requiring the District Council, as the local sanitary authority, to appoint an inspector with veterinary qualifications to aid in the enforcement of the Dairies, Cowsheds, and Milkshops Order of 1908. The aim of that Order is to ensure a pure and wholesome supply of milk to the public by requiring the provision of hygienic accommodation in the housing of dairy cattle, and by making penal such conditions of dairying as tend to the contamination of milk. With this end in view the Order directs the sanitary authority to keep a register of all persons carrying on the trade of cowkeeper, dairyman, or purveyor of milk, and to appoint the requisite officers for inspecting dairy premises and dairy cattle. After much delay the Kilmallock Rural District Council decided to disregard the Order of the Local Government Board, and the latter body thereupon ap-

plied to the King's Bench Division for a *mandamus*. This application was refused on technical grounds, and the case was then brought before the Court of Appeal. The Court of Appeal were unanimous in deciding that the Board's Order should be enforced by *mandamus*, and accordingly reversed the decision of the Court below.

It would be hard to discover better arguments in favour of the provisions contained in the Dairies, Cowsheds, and Milkshops Order than are affordod by the circumstances of Kilmallock and the surrounding district. Kilmallock is the centre of a large dairying industry, and contains no less than twenty-three creameries, with a daily supply of milk amounti.g, in in the busy season of the year, to as much as 40,000 gallons. During the hearing of the case it was showu that the condition of some of the dairy premises is unsatisfactory as regards construction, ventilation, drainage, and cleanliness. Manure is sometimes stored in close proximity to the cowshed, and the drainage is in some cases allowed to flow over the surface of the ground. Several of the creamery managers have complained of the dirty state of the milk supplied to their creameries by some of their customers, and also of the want of cleanliness of the milk cans and milking utensils. Sufficient proof was given of the necessity for a proper supervision over the production of the milk supply, both in the interests of the public health and of the creamery industry. There is good ground for the belief that the circumstances found to exist in Kilmallock are not peculiar to that district. The opposition of the Kilmallock Rural District Council does not appear to have been based on considerations either of administrative economy or public welfare. The reason alleged by them for their disregard of the Order was that they declined "to inflict unnecessary expense on the ratepayers." The cost of administering the Dairies, Cowsheds, and Milkshops Order would have been a trifling one, involving at most an addition to the rates of a fraction of a penny. The real motive for the Council's action seems to have been the unwillingness of the cowkeepers to submit to supervision. The inconvenience and the outlay which the system of inspection entails are as nothing when compared with the magnitude of the interests at stake.

The authorities of those centres which derive their milk supplies from outside areas are agreed as to the necessity for close supervision over the conditions under which milk is produced in the rural districts. The volume of the traffic of milk to centres of population is shown by the fact that 1,200,000 gallons of milk are yearly carried into Dublin by our railway companies, apart from the deliveries of milk by road from adjacent districts. In the interests of our industrial development our duty is clear. It is manifestly necessary that, in view of foreign competition, the reputation of Irish butter should not suffer by reason of careless or defective arrangements in the production of milk. The Departmental Committee upon the Irish butter industry have recommended that "the farmer's premises, at which the butter which ultimately reaches the butter factory is produced, should be subjected to similar regulations as apply to the premises at which milk is produced for sale to the creamery." Furthermore, the Dairies Order, if properly enforced, will afford a recognised sphere of activity for the veterinary profession, which has, until recently, remained entirely unconnected with sanitary administration. Numerous local authorities have taken advantage of its provisions to secure efficient inspectors.

The necessity for a strong central authority in matters of local administration has seldom been more clearly established than in the present case.

DISEASES OF ANIMALS ACTS 1894 TO 1903, SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Counties Affected	Sheep Scab.	Swine Fever.	
	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Animals Attacked	Out-breaks	Out-breaks.	Slaugh-tered. *
GT. BRITAIN. Week ended Dec. 31/10	30	40			6	13		42	27	420
Corresponding week in 1909 ...	23	23			7	14	Berks 7	23	14	16
Corresponding week in 1908 ...	20	21			10	22		38	27	84
Corresponding week in 1907 ...	23	24			13	37		52	28	160
Total for the Year 1910 ...	1496	1776	2	15	355	1022	Kent 1	554	1598	15543
Total for the Year 1909 ...	1317	1698			523	1753	London 5	685	1650	14316
Total for the Year 1908 ...	1105	1412	3	112	789	2433		849	2067	14096
Total for the Year 1907 ...	1084	1456			851	1921		751	2336	11275

Board of Agriculture and Fisheries, Jan. 3 1911.

Parasitic Mange (outbreaks)

IRELAND. Week ended Dec. 24	...	...	...	...	...	...	...	12	1	74
Corresponding Week in 1909 ...	...	...	...	...	...	...	...	7	...	...
Corresponding Week in 1908 ...	1	1	...	...	...	...	1	20	...	34
Corresponding Week in 1907 ...	...	...	...	...	...	...	1	30	5	10
Total for 52 weeks, 1910 ...	7	13	...	...	1	2	65	468	95	2226
Corresponding period in 1909 ...	8	8	...	...	...	...	75	424	88	1570
Corresponding period in 1908 ...	8	11	...	...	...	...	40	382	159	3625
Corresponding period in 1907 ...	3	5	...	...	6	11	77	326	161	2789

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Dec. 28 1910

NOTE.—The figures for the Current Year are approximate only.

* As Diseased or Exposed to Infection

The Extermination of Rats.

Operations at the Port of London.

The Corporation of London, as the Port of London Sanitary Authority, has addressed a circular-letter to shipowners urging them, in view of the risk of the dissemination of plague by rats and fleas infected with the disease, to arrange for the destruction of all such vermin on board the vessels under their control arriving in the Port from or touching at ports infected with plague. The most efficient way of destroying rats is by pumping sulphur dioxide gas into the vessels when empty until the air contains 3 per cent. of that gas. The Corporation is prepared efficiently to fumigate vessels in that way, the charges varying according to the size of the ship. Numbers of replies accepting the offer have been received, and the dock authorities are co-operating with the Corporation in the work of destroying the rats.

During November, in vessels and docks, 4,834 rats were destroyed, making in all 645,653 exterminated since the operations began in February, 1901. The Director of the London School of Tropical Medicine has consented to examine any rats sent to him. He has so far examined about 50, and three of them from the Port of London have been found affected with plague. All three came from the same locality.

Rats and Agriculture.

Sir James Crichton-Browne has estimated the damage done by rats at £15,000,000 per annum in Great Britain. This figure seems improbable at first sight, but the process of calculation by which it was arrived at suggests that it may be below rather than above the actual amount. Sir James reckoned a rat per acre of cultivated land and one farthing damages per rat per day. The average farm shelters and feeds more than a rat to the acre of arable land; it is no uncommon experience to account for as many in one stack of old grain at threshing time as would make up this average. It is more difficult to estimate the destructive capabilities of the vermin. The condition of an invested stack suggests a liberal allowance, more than a farthing a day, but there are periods of the year when the mischief is neither so serious nor so apparent. There can be no difficulty, however, in making out a strong case against the rat from the farmer's point of view, and the wonder is that the pest has been so long permitted to multiply and to work havoc. The rook, the sparrow, and other feathered tribes that prey upon the crops of the farm and garden offer some recompense for the mischief they do, but the rat is an evil doer in all its habits, and merits no consideration whatever.

Local rat clubs are of long standing, and they have been successful in reducing the pest in the districts covered by their operations. The benefit, however, has been temporary, and it cannot be said that appreciable progress has been made in exterminating the enemy. In the case of the rat nothing short of extermination can be satisfactory, and it is this circumstance that renders Government intervention desirable, if not necessary. The fact that a sum amounting to £250,000 per annum is said to be spent in the purchase of rat poisons in the United Kingdom shows that the vermin have not had a charmed existence, but the continued prevalence of rats in spite of this expenditure only shows that there is much wasted or misdirected energy. Sir James Crichton-Browne contends that the expenditure of one year on poisons would suffice to complete the extermination if concerted action were taken and the proper means of destruction employed.

The Law in Denmark.

The destruction of rats has been recognized by the Danish Government as a fit subject for State intervention, and in 1907 an Act was passed by the Riksdag for the encouragement and control of the work. The statute provides that when an association constituted for the purpose of effecting the systematic destruction of rats has proved to the satisfaction of the Minister of the Interior that it is in a position to expend on the furtherance of its objects, within a period of three years a sum of not less than 10,000 kroner per annum, it shall become incumbent upon each local authority to make suitable arrangements at the expense of the local funds, and, commencing with a date to be made known by the Minister of the Interior, for the reception and destruction of all rats killed within the district of such authority and delivered up to such authority. For each rat delivered up each local authority shall pay a premium, for the payment of which an annual grant shall be made out of the local funds, which shall be not less than three kroner per each hundred inhabitants within the district of each local authority. The State shall make for a period of three years an annual grant of 30,000 kroner, of which one-third may be expended on scientific experiments, whilst the remainder shall be expended on purchasing preparations for the extermination of rats, which shall be either employed on or in public lands or buildings, or out of which remainder grants may be made to associations towards the purchase of such preparations in a manner to be defined by the Minister of the Interior. Directions follow for the guidance of the local authorities, separate regulations being given for large and small towns.

A Bill in the House of Commons.

In March, 1909, a Rats (Destruction) Bill was introduced into the House of Commons by Sir Charles McLaren, and supported by Sir John Brunner, Mr. Munro Ferguson, Mr. Hay, Sir Gilbert Parker, and Sir Courtenay Warner. The Bill was supported by the Society for the Destruction of Vermin, and was founded on similar lines to legislation in force in Denmark, Hong-kong, Bermuda, and other States which has for its object to save the vast destruction of foodstuffs and other property caused by rats. It is pointed out in the Memorandum that private efforts have failed owing to lack of proper organisation and adequate resources, and that the Bill is intended to arm public authorities with powers to cope with the evil, while protecting private interests from any resultant damage.

Board of Agriculture's Views.

The general view of the Board is that the extermination of rats as pests to farmers is essentially a matter for local effort. It is suggested that the proper course is that rat clubs should be formed in every district, just as clubs for the extermination of the sparrow have been established, and that farmers should make it their business to clear the farms of this particular pest. But it is urged that neither individuals nor public bodies should confine themselves to one remedy. If a plague, whether of rats or insects or anything else, is to be got rid of, it is urged that every remedy that is practicable and available should be adopted. The Board is perfectly willing to do everything it can to help those who are making an effort to help themselves. It is ready to place at the disposal of those interested in the destruction of rats, or of any other agricultural pest, all the information it possesses, such lessons as have been derived from the experience of others, and such advice as it is within its power to give. The complaint the Department has to make, however, is that it is exceedingly difficult to induce either individuals or local authorities to move, even when a loss which, if not wholly preventible, might at least be largely mitigated, is proved to demonstration to be taking place. If the correspondence files were made available to the public they would reveal numerous cases in which Orders of

the Board, designed wholly for the protection of agriculturists from some disease or pest, have been entirely ignored by those whom they were intended to benefit. And, as matters stand, the Board has no power whatever to compel a lethargic or recalcitrant person or public body to give effect to one of its Orders.

NEED FOR STATUTORY POWERS.

Before any action of the kind which is suggested by some of the sufferers from the depredations of rats could be taken, the Board of Agriculture would have to seek statutory powers authorizing it, whenever and wherever there were default on the part of the individuals or local authorities, to step in, to perform the necessary work, and to recover the cost of so doing from those in default. It has not been proved, in its opinion, that local effort, if properly organized and sustained, is unable to cope with the evil. There is no evidence of any general desire for Government interference in this particular matter. It is true that, at different times, complaints have been received by the Board from farmers of the damage done to the crops by rats, but it is pointed out that these are quite insignificant by comparison with the complaints which they make of the destructiveness of other pests. It is further urged that, unless it were practically universally demanded by the farmers, the intervention of a State Department might provoke a not unnatural resentment. If the extermination was to be done effectually, Government officials might find it necessary to tramp all over a farmer's fields, to go thoroughly through the barns, to stop up, temporarily at all events, the drains, and, in short, completely to disorganize or seriously to interfere with, the whole of the farming operations. A farmer might reluctantly consent to this disorganization if he were carrying on a crusade against the rats on his own initiative, but it is suggested that there would be strong objection to it if it were brought about at the instance of Government officials. And if it became necessary, as a measure of precaution, to impose anything in the nature of restrictions, there might be an outcry that more harm was being done by the intervention of the State than had been caused by the rats.

The Board of Agriculture does not possess any *data* which would enable it to form a useful estimate of the damage done to agriculture by the depredations of rats. It is inclined to doubt, however, whether it would reach the enormous total of £15,000,000. The probability that every farmer suffers a certain loss from rats is admitted, but it is suggested that the few instances in which this loss is of a serious character are regarded as typical of what happens all over the country instead of being exceptional.—*The Times.*

The Slave-making and Parasitic Instincts of Ants.

Henri Piéron, writes in the *Revue générale des sciences* for September 15th, on the origin of the slave-making and parasitic instincts of ants. He deals only with the facts such as we know them, and reserves for a later contribution the discussion of the theories advanced to explain these curious instincts. Many of the wonderful stories told of ants are familiar to everybody. Piéron has set himself the task of collecting and summarizing numerous scattered observations, and endeavouring to trace through them some evolutionary order. First he takes up the founding of new colonies. This is in many cases the special and exclusive work of the females. The methods employed are of very varied complexity. In what may be regarded as the simplest cases the fertilized female is entirely responsible for the founding of the colony. By her own unaided efforts she digs out a nest for the reception of her eggs. She has to seek her own food throughout this time, but she lives to a large extent on the histolysis of her own body muscles, for after the nuptial flight, the wings are of no further use, and the large alar muscles are absorbed. Another method more advantageous to the female, is that of founding a new colony in an already existing nest. This practice is followed by a considerable number of species. Certain species do not go so far as this, but are content to establish their nest in the immediate neighbourhood of a nest belonging to an allied species. This is the case with the tiny *Solenopsis fugax*, which builds its nest around that of *Messor barbatus*. It very cunningly, too, bores passages into the nest of its large neighbour and steals its provisions. *Messor* is too large to get into the passages, and so the robbers escape. Usually the nest taken possession of by the female is an abandoned one, but occasionally she is received into a nest still fully occupied. Sometimes the original inhabitants quit; in rare cases they continue to live symbiotically with the new colony. The third method of founding a colony is by aid of workers of the same species, either belonging to the same nest as the female comes from, or more usually to another nest. A fourth method calls in the aid of workers belonging to a different species. The female is actually adopted by the latter and made their queen; this is quite a common occurrence among American ants, and is universal in such species, of which there are a number, in which there are no workers. The fifth and last method is the most remarkable of all. The female enters a foreign nest, kills or puts to flight the queen and workers, and takes possession of the pupae. When these develop into workers she makes them her slaves. A colony having been founded by a queen in one or other of these diverse ways, its perpetuation rests chiefly in the hands of the workers. On them devolves the duty of procuring food, of caring for the queen, larvae and pupae, and a dozen other different things. In a large number of cases the workers perform each and all of these multifarious duties without any division of labour. In certain species some are differentiated as soldiers for attack and defence. When the queen has founded a colony in a foreign nest, the workers treat her exactly as they would their own queen, and devote themselves to rearing her progeny. As the latter grow older the original workers gradually disappear. In the meantime, however, the nest is inhabitated by a mixed colony. Curiously enough the offspring of the queen not infrequently show a tendency to carry off the larvae and pupae of the species which has nursed them, and so add to the numbers of their own nest. This occurs more particularly when the nest is not sufficiently populated. In many mixed colonies the two species live entirely separate, but one may be dependent on the other for its sustenance. From this the step to complete parasitism is not far, and many cases are known where one species takes up its abode with another, and lives entirely by the efforts of the other. This may be a matter of compulsion, for several species consist wholly of soldiers, who, although incapable of doing ordinary work, may compel the workers of another species to work for them. Species in which no workers occur and all the individuals are sexual have of necessity to become parasitic on other species, and many interesting observations have been made on the various ways in which they treat their hosts. It is impossible, however, in a short space to give details of the various habits, and we have merely attempted to indicate the method in which Piéron has treated a marvellously fascinating study.—*B.M.J.*

Veterinary Examination of Mares.

The Council of the Hunters' Improvement Society, in sending out its scheme of gold and silver medals for next year, calls special attention to the addendum made as to the veterinary examination of hunter brood mares

under Schemes A and B, in regard to which the Council has resolved that "any hunter brood mare eight year old or over, being either awarded one of the Society's gold medals or selected reserves for same, or having been passed sound after the 1st of January, 1911, by a veterinary surgeon appointed by the Hunters' Improvement Society, shall be exempt from further examination on the owner producing at the time of exhibition the official veterinary certificate issued by the secretary of the Hunters' Improvement Society." The form of certificate referred to is as follows: "I hereby certify that the hunter brood mare No. ——, (colour) ——, (markings) ——, (foaled) ——, has been passed in accordance with the above (veterinary certificate), and is thereby exempt from further examination when competing for the medals of the Hunters' Improvement Society. ——, Secretary, 12 Hanover Sqnare, London." Secretaries of societies are asked to incorporate this exemption in the offer of gold medals by the Hunters' Improvement Society and to recognise the official veterinary certificate, a copy of which is sent them.

The Cawdor Cup—Veterinary Inspectors.

At a meeting of the Cawdor Cup Committee, the following gentlemen were appointed veterinary inspectors for the Cawdor Cup competition in 1911: Prof. James M'Call, F.R.C.V.S., chief inspector, umpire, and oversman: reserve, Prof. J. R. M'Call, M.R.C.V.S. Other examiners—Mr. William Logan, M.R.C.V.S., Inverness; reserve, Mr. John Jarvie, M.R.C.V.S., Carluke: Mr. Andrew Robb, F.R.C.V.S., Glasgow; reserve, Mr. Alex. Baird, M.R.C.V.S., York Terrace, Edinburgh. It was further agreed that on demand by the owner a certificate setting forth the result of the examination be given by the examiners on payment of a fee of one guinea to the Clydesdale Horse Society, which Society will bear all the costs connected with the veterinary inspection.

Heinrich Albert Johne.

Four weeks ago, we noted the death of Prof. Johne, late professor of pathology at the Dresden Veterinary School. We now give some short account of a life that bore rich fruit for veterinary science.

Johne died fifteen days before attaining his 71st year. He was born in Dresden, Friederichstadt, on the 20th of December, 1839, and was the son of a member of the profession who at that time held the appointment of Veterinary Surgeon to the Royal Stables. Educated at his native place, he qualified as a veterinary surgeon in the year 1859. The next few years (1859 to 1866) were spent in private practice, first at Frauenstein, and afterwards at Lohmen in Saxony. Then he worked as a district veterinarian in Rochlitz from 1866 to 1876; and in the last named year he obtained a junior appointment on the staff of the Dresden Veterinary School. In 1879, he studied under Cohnheim at the Pathological Institute, under Leuckart at the Zoological Institute, and under Zürn in the Veterinary Institute of the University of Leipzig, the degree of Dr. Phil. rewarding his labours. In the same year, 1879, he attained the chair of pathology at the Dresden Veterinary School, and it was in this capacity that he executed researches upon many animal diseases, such as authrax, glanders, rabies, and especially, perhaps, tuberculosis, actinomycosis, and botryomycosis, that brought his name into world wide prominence among veterinary pathologists.

He was the first to recognise and describe the widely distributed "Johne's Disease" of cattle, which, in England at least, is generally known by the name of its discoverer. But he did much important original work in connection with other diseases, and made many observations of moment in medicine and pathology—he was the first to describe the now well-known condition of bovine digestive disturbance arising from the pressure upon the œsophagus of a mediastinal gland which has undergone tuberculous hypertrophy. He was a voluminous writer, was co-editor of the *Rundschau auf der Gebiete der Fleisch-beschau*, and editor of the even better known *Zeitschrift für Tiermedizin*. He did much for the insitution and improvement of scientific meat inspection; and decidedly it may be said that in all the varied activities of his many sided life, his work tended to raise the veterinary profession.

The value of that work was fully recognised outside his own country as well as within its borders. The University of Halle, at its bi-centenary in 1894, accorded Johne the degree of doctor "honoris causa." The Veterinary School of Vienna, in 1909, elected him to an honorary doctorship in veterinary medicine. Moreover, Swedish, Danish, Hungarian, Swiss, Russian, North American, and English Veterinarians alike elected Johne as their Honorary Associate. Our own R.C.V.S. has not too many Honorary Associates; but Johne was one of them, and well deserved the honour.

Lastly, it may be said that Johne was a man of sterling character, who commanded the respect of all who knew him The large and influential concourse that followed his remains to the grave testified to the esteem in which he was held, no less than to the value of his work.

OBITUARY.

ARTHUR SAMUEL AUGER, M.R.C.V.S., Saxmundham, Suffolk. Graduated, Lond: April, 1880.

Mr. Auger died on Dec. 28th from injury to the heart, caused by moving the carcase of a bullock. Aged 54 years.

GEORGE SYDNEY JAMES, M.R.C.V.S., Honiton, Devon. Lond: April, 1879.

Death occurred on the 23rd December at the Royal Devon and Exeter Hospital, from valvular disease. His age was 56 years.

FREDK. GLASS, M.R.C.V.S., late of Ellon, Aberdeenshire New, Edin: April, 1877.

Death took place at Aberdeen, on Dec. 28th, from Sarcoma of jaw, at the age of 57 years.

RE ABDOMINAL STRANGLES.

Sir,

If "Enquirer" will insert his name and address in your next edition I shall be only too pleased to answer his queries, but I decline to enter into controversy with anyone who, no doubt for reasons best known to himself, prefers to remain anonymous. I have, Mr. Editor, also received an anonymous postcard suggesting that the pendulous swelling was the result of my strong mustard application. The anonymous writer and critic doubts my diagnosis, and says he has made many blunders himself in his time. I am glad that he is really so sportsman-like to admit that he is, like most of us, not infallible in his diagnosis of various diseases. I enclose the postcard received for your perusal. The mustard was applied on the chest (not on the abdomen) in June and then only left on for *20 minutes* and washed off. No swelling resulted. The pendulous swelling (abdominal) came on suddenly, as stated in my article, not until October. I shall be glad if you will print the anonymous postcard enclosed.—Yours truly,

H. B. EVE, M.R.C.V.S.

Claremont House, Folkestone.
January 1st.

"*Re* GREY HORSE *Veterinary Record*.

Did it not strike you that the pendulous swelling was the result of your strong mustard application? What a diagnosis you arrived at! I have made many blunders myself.

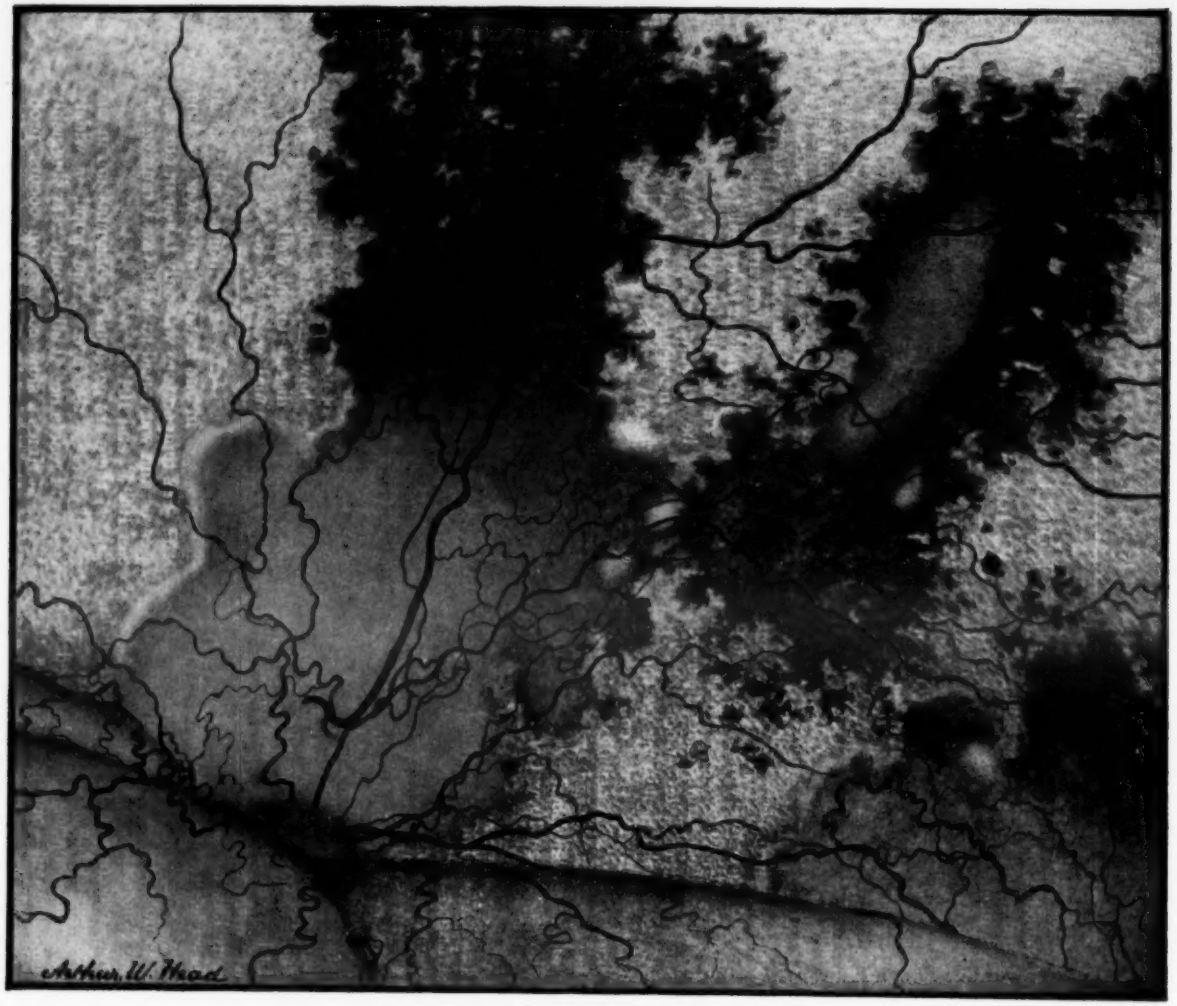

Fig. 1. Ophthalmoscopic view of the left fundus in case 2.